

## REMARKS

### Applicants' Invention is Patentable Over the Kern et al. Reference

Kern et al. reference discloses a transfer mechanism for switching load circuits such as those located in a building from electric power that is provided by a utility (power company) to electric power that is provided by a stand-by generator. In the arrangement of Kern et al., the transfer mechanism is interposed between a utility source (42 in the schematic drawings of FIGURES 4 and 5) and a stand-by generator 44. As is shown in FIGURES 4 and 5 and as is described at column 4, line 49-Column 5, line 14, the utility 42 supplies 240 volt alternating current, with the depicted arrangement of both FIGURE 4 and 5 including four 120-volt circuits and a 240-volt circuit. In particular, utility 42 supplies a 240 volt circuit via a dual-circuit breaker 68 and supplies four 120 volt circuits via circuit breakers 60, 62, 64, and 66.

Located within the Kern et al. transfer mechanism are three double-pole, double-throw relays 77, 79, and 92, which serve as switches to interconnect load circuits with utility 42 or, alternatively, stand-by generator 44. In the arrangements of FIGURES 4 and 5 the two common (wiper) contacts of double-pole relay 77 are connected for supplying 120 volts to two load circuits; the two common (wiper) contacts of double-pole relay 79 are connected for supplying 120 volts to two additional load circuits; and the two common (wiper) contacts of double-pole relay 92 are connected for supplying 240 volts to a single 240 volt load circuit. The normally closed contacts of each of the three double-pole, double-throw relays are connected to utility 42 so that the appropriate voltages are supplied to the load circuits when power is available from utility 42. Specifically: (1) relay 92 supplies 240 volts via a circuit path through double-pole circuit breaker 68 and the normally closed contacts of both sets of contacts in double-pole, double-throw relay 92; and, (2) 120 volts is made available to three separate load circuits via the

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four normally closed contact sets of relays 77 and 79 via single-pole circuit breakers 60, 62, 64, and 66.

In the arrangement of Kern et al., a monitoring circuit 188 is connected to the utility source 42 and the stand-by generator 44. In the event of a power outage (no power available from utility source 42), monitoring circuit 188 starts the internal combustion engine of generator 44. As long as circuit breakers 114, 116, 118, 120, and 122 of the transfer apparatus are closed, a 240-volt signal is supplied across the coils of double-pole, double-throw relay 77, 79, and 92 (schematically identified in FIGURES 4 and 5 as relay coils "K3," "K2," and "K1," respectively). All three double-pole, double-throw relays are thus energized to supply power to the above-described four 120-volt load circuits and the above-described 240-volt load circuit. See, Kern et al. at column 6, lines 22-58.

The manner by which stand-by power is supplied during power outages is described at column 5, lines 22-44. Specifically, stand-by generator 44 supplies 120 volts to the normally open contacts of both contact sets of double-pole, double-throw relay 92 so that 240 volts is supplied to a load connected to the common (wiper) contacts of double-pole, double-throw relay 92 when relay 92 is energized. Similarly, stand-by generator 44 supplies 120 volts to the two normally open contacts of both double-pole, double-throw relays 77 and 79. That is: (1) the 120-volt stand-by voltage is supplied to the normally open contact of one set of contacts in relays 77 and 79 via 120-volt signal bus 104 and single-pole circuit breakers 114 and 116; and, (2) the 120-volt stand-by voltage supplied to the normally open contacts of the second set of contacts in double-pole, double-throw relays 77 and 79 via 120-volt signal bus 106 and single-pole circuit breakers 118 and 120.

As an alternative to allowing current flow through the coils of relays 77, 79, and 92, when generator 42 is initially started by monitoring circuit 188, the arrangement of FIGURE 5 includes time delay switches 204, 206, and 208 that are connected in series with the relay coils.

Significant differences exist between applicant's invention and the arrangements of Kern et al. Of primary importance, the invention utilizes single-pole, double-throw signal-controlled selectors with the coil of each signal-controlled selector being made available so that the selectors can be energized in any combination. *See, e.g.*, page 10, lines 1-26 and page 12, lines 1-3. This structural difference between applicant's invention and the arrangements of Kern et al. is highly important from the operational or functional standpoint. For example, as is indicated at page 10, line 19-page 11, line 18, and at page 12, lines 1-3, any portion of the signal-controlled selectors of the invention (i.e., from one selector to all selectors) can be activated by applying suitable signals to the individually available signal-controlled selector coils. Thus, the controller 170 of the invention can employ a microprocessor control circuit to selectively provide control signals to a desired set of signal-controlled selectors to thereby provide standby power to only a portion of the load circuits for which standby power can be made available. Further, separate access to the coils of the signal-controlled selectors means that a wide variety of controllers and control techniques may be used, including wireless communication techniques for remotely selecting which load circuits will be on standby power (see the application at page 11, lines 13-17). On the other hand, if desired, all signal-controlled selectors of the invention can be activated to provide the same type of operation as is provided by Kern et al. wherein all load circuits that are connected to the transfer apparatus are provided standby power when there is a failure of utility power.

As amended, the claims of the application distinguish applicant's invention over the disclosure of Kern et al. For example, independent Claim 1 has been amended to clearly state

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that the claimed method includes the provision of a plurality of selectively energizable independent signal lines and the selection of one of the signal lines to independently and selectably energize a signal-controlled selector to selectively supply from the recited alternate electrical power source. The relays (signal-controlled selectors) of Kern et al. are not selectively energizable. Furthermore, the signal lines controlling the relays of Kern et al. are not independently energizable. As is described above, all three double-pole, double-throw relays of the Kern et al. arrangements are 240-volt devices that are activated (controlled) by the presence of the 240-volt stand-by voltage. That is, all three relays of the Kern et al. arrangement are activated during a power outage. Thus, the relays of Kern et al. cannot cause power to be supplied from an alternate power source to selected load circuits while other load circuits remain connected to the main supply.

Claim 4 (dependent upon Claim 1 via dependent Claims 2 and 3), further specifies that the claimed method is practiced in an arrangement in which the selectively energized signal lines carry control signals to signal-controlled selectors installed at respective selector sites. This limitation is supported by FIGURE 2 of the application, which shows signal lines connected to terminals of the signal-controlled selector coils (154), with the signal lines being made available at connector 162 (described at page 10, lines 1-11 of the application).

Claim 5 dependent upon dependent Claim 4, also has been amended for additional clarity that further distinguishes Claim 5 over Kern et al. Specifically, as amended, Claim 5 specifies that the recited method includes the provision of at least one control signal for selectively activating the recited signal lines. As noted above, in the arrangement of Kern et al., the three double-pole, double-throw relays that function as signal-controlled selectors are activated by the single signal--the 240-volt signal supplied by the stand-by generator.

Claim 7 (dependent upon Claim 1) has been amended to recite inclusion of a connector for receiving the recited control signals (e.g., connector 162 of Figure 2 of the application).

Independent Claim 10 of the application has been amended to incorporate limitations previously set forth in canceled Claim 11 and, in addition, to specifically recite that the claimed arrangement includes a signal-controlled selector that is operable to selectively connect the recited load circuit to the main electric power source or the recited electric power distribution conductor (the alternate power source) in response to a control signal that need not be supplied by the alternate electric power source. The limitation relating to the control signal is in stark contrast with the arrangement of Kern et al. wherein the control signal is the voltage supplied by the alternate electric power source (i.e., the activation of the stand-by generator).

Claim 12 has been amended to state dependency upon independent Claim 10, rather than canceled Claim 11. Additionally, Claim 12 has been amended to specifically define inclusion of a plurality of selector sites each having an associated signal-controlled selectors and, further, a plurality of signal lines that individually carry signals for individual activation of the signal-controlled selectors. That structure is not found in, or suggested by, Kern et al. wherein all the signal-controlled selectors (relays) are commonly energized by a single signal.

Claim 13, which is dependent upon Claim 12 and defines a controller for providing control signals has been amended to provide correct antecedent basis (--signals-- and --selectors--) being substituted for "signal" and "selector." Claim 14, dependent upon Claim 13 has been amended for improved clarity by substituting --microprocessor circuit-- for "processor circuit" and by adding the functional limitation that the microprocessor circuit is "for selectively determining which signal-controlled selectors are provided with control signals."

Kern et al. does not meet or suggest the arrangements of Claims 13 and 14. Contrary to a position taken in the Office Action, the monitoring circuit 188 of Kern et al. is not a "controller"

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in even the general context of applicant's claimed invention. Monitoring circuit 188 does not provide control signals to signal lines that activate the relays of Kern et al. -- it is the generator 42 that activates Kern et al.'s relays.

Independent Claim 25 has been amended to substitute --a plurality of load circuit selector sites-- for "a load circuit selector site," and to add the limitation that at least a portion of the signal-controlled selectors are connected for activation independently of other ones of the signal-controlled selectors to allow alternate power to be supplied to "*only selected ones of said individual load circuits*." As previously noted, in the arrangements of Kern et al., all of the disclosed double-pole, double-throw relays that function as "signal-controlled selectors" are energized by the 240-volt signal supplied by the stand-by generator. Thus, Kern et al. discloses and teaches supplying the standby power to every load circuit rather than "selected ones of said individual load circuits."

Claim 26 has been amended to substitute the term --plurality of load circuits-- for "a load circuit" and, in addition to limit the claimed arrangement to one in which power from the main electric power source is supplied to all of the recited plurality of load circuits but is supplied by the recited alternate electric power source to "any selected portion of said plurality of load circuits." An arrangement wherein any or all load circuits are switched to stand-by power is not disclosed or suggested by Kern et al.

Claim 28, which previously recited the "plurality of load circuits" language has been canceled since that language now is incorporated in independent Claim 26.

Claim 29 has been amended to correct a clerical error (substitution of -- sites -- for sides.")

New Claim 35 has been added to provide an alternative definition of applicant's invention. Added Claim 35 is patentably distinguished over Kern et al. in that it specifically

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recites a plurality of selectively actuatable signal lines that carry independent control signals for independently energizing the recited signal-controlled selectors.

Each independent claim of the application (Claims 1, 10, 25, 26 and 35) is believed to be in condition for allowance for the reasons stated above. Non-canceled dependent claims (Claims 2-9, 12-24, 27, 28 and 30-34) are believed allowable because they depend from allowable independent claims. Further, as discussed above, several of the dependent claims have been amended to incorporate language that more clearly distinguishes applicant's invention over the Kern et al. reference.

In addition to the above, it is noted that applicant disagrees with the position taken in the Office Action as to obviousness of dependent claims that specify realization of the invention in a printed circuit format. Applicant acknowledges the fact that realizing a circuit arrangement in printed circuit form may be a matter of engineering design choice in certain situations. However, in this case, there is nothing to suggest realizing the transfer apparatus of Kern et al. or the claimed invention as a printed circuit arrangement. This is especially true since the three double-pole, double-throw relays of Kern et al. are power relays having 240-volt coil windings. Applicant also notes disagreement that dependent claims directed to microprocessor-based control of the invention and/or remote control such as the disclosed wireless control, is a matter of engineering design choice. There is nothing in Kern et al. that suggests any such control arrangement. Moreover, because the double-pole, double-throw relays of Kern et al. are energized by the stand-by generator, remote control in Kern et al. would be limited to starting the generator, which is in sharp contrast with the microprocessor-based and remote wireless claims presented in this application.

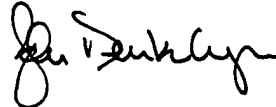
The "art of general nature" cited in the Office Action has been reviewed. Nothing has been located that is material to the patentability of applicant's claimed invention.

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For all the reasons stated herein, applicant respectfully requests allowance of all of the now pending claims and early passage to issuance.

Respectfully submitted,

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